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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RAVI RAMANATHAN, GREGORY J. KORCHNAK, DAVID M. COURTER, MARTIN C. CORNELL, ARTHUR F. CAWLEY, KENNETH RITZEMA, and STEVEN B. SWARTZMILLER

Appeal 2009-2057
Application 10/673,615
Technology Center 1700

Decided:¹ May 13, 2009

Before EDWARD C. KIMLIN, BEVERLY A. FRANKLIN, and KAREN M. HASTINGS, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-15, 21, 23-30,

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the Decided Date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

and 39. We have jurisdiction under 35 U.S.C. § 6(b).

Claims 1 and 21 are illustrative:

1. A fuel tank comprising two or more sections having an untreated low energy surface bonded together with an adhesive which bonds to low energy surface materials, wherein the cured adhesive has a lap shear strength of about 400 psi or greater, wherein the adhesive does not require surface pretreatment of the low energy surface materials.

21. A fuel tank assembly comprising a fuel tank and fuel tank component(s) selected from the group consisting of a fill spud, vent valve, access cover, fuel line, fuel pump, fuel cut-off valve, fuel level gauge, clip, cam lock, fuel sender, roll-over valve, and heat shield, and joined to the fuel tank by means of an adhesive wherein the fuel tank, fuel tank components or both have untreated low energy surface and the adhesive bonds untreated low energy surfaces.

The Examiner relies upon the following references as evidence of obviousness (Ans. 3):

Zharov	5,539,070	Jul. 23, 1996
Wood	5,928,745	Jul. 27, 1999
Yang	6,110,544	Aug. 29, 2000
Straetz	6,454,114 B2	Sep. 24, 2002
Chan	2002/0172788 A1	Nov. 21, 2002

Appellants' claimed invention is directed to a fuel tank made by bonding together two or more surfaces of low energy surface material, such as polyethylene, with an adhesive, such as an adhesive comprising an amine/organoborane complex. The surfaces of the fuel tank that are bonded together are untreated before application of the adhesive.

The appealed claims stand rejected under 35 U.S.C. § 103(a) as follows:

- (a) claims 1-15, 21, 23-26, 29, and 39 over Wood in view of Zharov,
- (b) claims 1-15, 21, 23-26, 29, and 39 over Straetz in view of Zharov,
- (c) claims 27 and 28 over Wood or Straetz in view of Zharov and Yang, and
- (d) claim 30 over Wood or Straetz in view of Zharov and Chan.

We have thoroughly reviewed each of Appellants' arguments for patentability, as well as the declaration evidence relied upon in support thereof. However, we find ourselves in complete agreement with the Examiner's reasoned analysis and application of the prior art, as well as his cogent disposition of the arguments raised by Appellants. Accordingly, we will adopt the Examiner's reasoning as our own in sustaining the rejections of record, and we add the following for emphasis only.

There is no dispute that both Wood and Straetz, the two primary references, disclose using an adhesive to bond together two halves of a fuel tank. Both references also disclose that the halves of the fuel tanks comprise HDPE (high density polyethylene) which, according to Appellants' Specification, is a low surface energy material. As acknowledged by the Examiner, neither reference expressly discloses the selection of an adhesive for bonding untreated low energy surface materials, in general, or an adhesive comprising an amine/organoborane complex, in particular. However, the Examiner cites Zharov for the explicit teaching of an adhesive comprising an amine/organoborane complex that is "particularly useful in bonding low surface energy substrates (e.g., polyethylene . . .) that, heretofore, have been bonded using complex and costly surface preparation

techniques” (col. 4, ll. 2-6). Accordingly, based on the collective teachings of the references, we are convinced that the Examiner has drawn the proper legal conclusion that it would have been obvious for one of ordinary skill in the art to select the presently claimed adhesive for bonding the fuel tank halves of Wood and Straetz. To do so would have been no more than the predictable use of a known adhesive composition. *KSR Int'l co. v. Teleflex, Inc.*, 550 U.S. 398, 415-416 (2007).

As for the claim 21 requirement for adhesively bonding fuel tank components, such as valves, with such an adhesive, we fully concur with the Examiner that it would have been obvious for one of ordinary skill in the art to employ the same adhesive material that is used to bond the halves of the fuel tank. Appellants have not refuted the Examiner’s factual finding that such components are typically made of plastic, such as polyethylene, and we subscribe to the Examiner’s rationale that “one of ordinary skill in the art would have recognized that if adhesive is sufficient to combine two halves of a fuel tank together without losing strength or leaking than [sic, then] adhesive would also be sufficient to combine fuel components to the fuel tank” (Ans. 18, second para.).

We find no merit in Appellants’ argument that the Examiner has failed “to establish that one skilled in the art would expect that such adhesives as disclosed in Zharov would be successful in reliably bonding the parts of a fuel tank together” (Br. 7, last para.). Since the Examiner has established that Zharov expressly teaches that the disclosed adhesive composition is particularly useful for bonding low energy surface materials, such as the polyethylene used for the fuel tanks of Wood and Straetz, we find that the Examiner has demonstrated that one of ordinary skill in the art

would have had a reasonable expectation of successfully bonding the fuel tank halves of Wood and Straetz with the adhesive composition of Zharov. We are also not persuaded by Appellants' argument that the Examiner has not established that it was known in the art that the adhesive of Zharov possesses properties that "could withstand, or perform acceptably, in light of the environment and stresses applied to the adhesives in use for bonding a fuel tank" (*id.*). Neither Wood nor Straetz teaches that specific adhesives must be used in bonding the halves of the fuel tank, and Appellants have not identified any particular environmental problems that must be considered in selecting an adhesive for bonding the fuel tank halves. Nor have Appellants given any reason why one of ordinary skill in the art would have been dissuaded from using the adhesive of Zharov for bonding the sections or components of a fuel tank.

Appellants rely upon the Ristoski Declaration to support the argument that "it is well known that in commercial practice today, all fuel tanks are bonded together using vibration welding or hot plate welding and not adhesives" (Br. 9, second para.). However, the commercial technique in vogue for bonding fuel techniques at the time of filing the present application does negate the obviousness of using the adhesive bonding that is specifically disclosed by Wood and Straetz. Manifestly, many factors may determine which particular, known technique is employed for bonding fuel tanks and their components, such as cost, availability of materials, etc. Moreover, even if vibration welding or hot plate welding achieves a better bond than an adhesive composition, this would not undermine the obviousness of using a somewhat inferior technique. Appellants have presented no argument, let alone the requisite objective evidence, that the

Appeal 2009-2057
Application 10/673,615

adhesive bonding within the scope of the appealed claims produces unexpected results. We also find no error in the Examiner's reasoning that "it would have been obvious to one of ordinary skill in the art to add a second seal of adhesive to a primary seal when joining components to the fuel tank in order to increase sealability" (Ans. 7, first para.).

Regarding Appellants' argument that Zharov does not teach adhesive compositions within the scope of claims 8-13, Appellants have not rebutted the Examiner's factual finding that Zharov teaches "several organoborane/amine complexes used for acrylic adhesives that are embraced by the instant claims when both R¹ and R² are alkyl and 'b' equals 0 and 'a' equals 1, especially compounds 6, 9, etc. (col. 12, table 1)" (Ans. 20, second para.).

In conclusion, based on the foregoing and the reasons well stated by the Examiner, the Examiner's decision rejecting the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a) (2008).

AFFIRMED

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